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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,471	07/23/2003	Laura Hadden	71493-1165 /aba	7439

7380 7590 06/19/2009

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EXAMINER
LI, SHI K

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
06/19/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/624,471	HADDEN ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *38-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *38-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 38-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 38 recites the limitation "at least one performance metric measuring interference effects" in lines 3-4. Instant specification teaches optical effects, noise effects, four-wave mixing effects, etc. However, instant specification does not teach measuring interference effects in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 38 recites the limitation "identifying an upstream segment on the unidirectional path, and recalculating a value of the performance matrix by analyzing interference effects on the wavelength in the upstream segment" in lines 10-12. Instant specification teaches in FIG. 2 step 204 for identifying downstream segment. However, instant specification does not describe the limitation in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 38 recites the limitation "for each upstream segment connected to the node on the wavelength other than the upstream segment on the unidirectional path, recalculating the value of performance matrix by identifying a transmitter node of the upstream segment on the wavelength" in lines 14-17. Instant specification does not describe the limitation in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 45 recites the limitation "at least one performance metric measuring interference effects" in lines 4-5. Instant specification teaches optical effects, noise effects, four-wave mixing effects, etc. However, instant specification does not teach measuring interference effects in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 45 recites "recalculating the value of the performance matrix by analyzing interference effects o the wavelength in each of upstream segments on the wavelength" in lines 6-7 of the claim. Instant specification teaches in FIG. 2 step 204 for identifying downstream segment. However, instant specification does not describe the limitation in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 46 recites the limitation "the node is an OAM node" in lines 1-2 of the claim. Instant specification teaches that calculation can be done in an OAM. However, instant specification does not teach that an OAM has a receiver for receiving from an upstream node along a wavelength path a value of a performance matrix and calculating the performance matrix by analyzing interference effects on the wavelength. That is, instant specification does not

describe the limitation in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 38-47, 49 and 52-54 are rejected under 35 U.S.C. 102(e) as being anticipated by Levandovsky et al. (U.S. Patent 7,095,956 B2).

Regarding claims 38, Levandovsky et al. identifies in col. 4, lines 24 signal-to-noise ration (SNR) as performance metric. Levandovsky et al. identifies in FIG. 3 step 303 a signal path and in FIG. 4 steps 403 and 408 to construct a path backward, i.e., from the receiver to the transmitter via upstream links. Levandovsky et al. calculates in step 304 of FIG. 3 noise figure for each component. Levandovsky et al. teaches in the appendix, especially col. 15 to col. 31 calculating performance by analyzing interference effects on the wavelength. Levandovsky et al. teaches in col. 23, line 25 to approximate the impact by using noise figure and teaches in col. 4, lines 24 that $SNR_k = NF_k/SNR_o$. Levandovsky et al. teaches calculating noise figure for each chain of k elements (e.g., k segment of fiber). Levandovsky et al. teaches in FIG. 4 step 410 to compare the SNR and bit error rate for the path with a range for determining the path's viability.

Furthermore, Levandovsky et al. teaches in col. 25, lines 20-22 that the noise power depends on the optical power per wavelength, number of wavelengths, fiber dispersion parameter, which, in term, depends on fiber type and the interaction length.

Regarding claim 39, Levandovsky et al. teaches in col. 25, lines 20-22 fiber type and interaction length as base variable.

Regarding claims 40-41, Levandovsky et al. teaches in col. 25, lines 20-22 non-linear impairments such as cross-phase modulation and four-wave mixing.

Regarding claims 42-43, Levandovsky et al. teaches in col. 25, lines 20-22 stimulated Brillouin scattering (SBS) and stimulated Raman scattering (SRS).

Regarding claim 44, Levandovsky et al. teaches in col. 25, lines 20-22 bit error rate and signal-to-noise ratio.

Regarding claim 45, Levandovsky et al. teaches in FIG. 4 calculating and comparing the SNR and bit error rate for the path with a range for determining the path's viability.

Regarding claim 46, Levandovsky et al. teaches in col. 5, lines 25-26 a centrally located controller (equivalent to OAM of instant claim).

Regarding claims 47 and 49, Levandovsky et al. teaches in col. 5, lines 40-45 calculating noise figure at each NE on a path route using cumulative noise-related information received from a previous element on the path. That is, each node, in particular the transmitter, calculates noise-related information and forward to downstream node along the path.

Regarding claims 52-54, Levandovsky et al. teaches in col. 3, lines 44-45 software residing in a memory.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 48 and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levandovsky et al. (U.S. Patent 7,095,956 B2) in view of Beine et al. (U.S. Patent 6,701,087 B2).

Levandovsky et al. has been discussed above in regard to claims 38-47, 49 and 52-54. Levandovsky et al. teaches in col. 5, lines 30-40 that the transmission of cumulative noise-related information is via signaling protocols similar to RSVP or CR-LDP. It is well known in the art that RSVP or CR-LDP is conveyed using OSC. Therefore, either Levandovsky et al. suggests using OSC for communicating performance value or it is obvious to use OSC for communicating performance value. Furthermore, Examiner cites Beine et al. for teaching communicating parameters via an OSC channel (col. 25, lines 49-50). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use OSC for communicating performance parameters, as taught by Beine et al., in the path validation method of Levandovsky et al. because using OSC for such purpose is well known in the art and its use would have yield predictable results to one of ordinary skill in the art at the time of the invention.

Response to Arguments

7. Applicant's arguments filed 3 April 2009 have been fully considered but they are not persuasive.

The Applicant argues that Levandovsky et al. does not teach the following features recited in claim 38.

(a) defining a performance matrix by identifying at least one performance metric measuring interference effects on the wavelength along the signal path;

(b) identifying a unidirectional path of the wavelength through a plurality of nodes interconnected by segments of optic fibre;

(c) analyzing interference effects on the wavelength at the node;

(d) for each upstream segment connected to the node on the wavelength other than the upstream segment on the unidirectional path, recalculating the value of the performance matrix he identifying a transmitter node of the upstream segment on the wavelength, and analyzing interference effects on the wavelength while the signal passes through the transmitter node to the upstream segment.

The Examiner disagrees. (a) Levandovsky et al. identifies in col. 4, lines 24 signal-to-noise ration (SNR) as performance metric. (b) Levandovsky et al. identifies in FIG. 3 step 303 a signal path and in FIG. 4 steps 403 and 408 to construct a path backward, i.e., from the receiver to the transmitter via upstream links. (c) Levandovsky et al. teaches in the appendix, especially col. 15 to col. 31 calculating performance by analyzing interference effects on the wavelength. (d) The Applicant's argument is moot in view of the new subject matter.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (6:30 a.m. - 4:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

skl
14 June 2009

/Shi K. Li/
Primary Examiner, Art Unit 2613